Reproductive strategy of pouting, *Trisopterus luscus* (Linnaeus, 1758)

by

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ABSTRACT. - To assess annual fecundity accurately it is necessary to identify the reproductive strategy of the fish species under consideration. The reproductive strategy of pouting was investigated and our results indicate that pouting has determinate fecundity.

Key words. - Galicia - Pouting - *Trisopterus luscus* - Fecundity.

Introduction

Pouting is assumed to be a determinate spawner although there is no clear evidence to support this claim. The main objective of this study is to identify which reproductive strategy best describes pouting.

Methods

443 ovaries of pouting from the Galician shelf were sampled in 2004. Histological examination of these ovaries was used to stage oocyte development. Seasonal variations of gonadosomatic, hepatosomatic index and condition factor (GSI, HSI and K) were analyzed as well as the Number of Developing Oocytes (NDO) and the batch fecundity (BF).

Results

Spawning season was established by the mean monthly variation of GSI in mature fish and by contrasting these results with the monthly proportions of microscopic maturity stages. Highest GSI values occurred at spawning (presence of hydrated oocytes and postovulatory follicles), which is in accordance with the asynchronous oocyte development displayed in pouting (no dominant populations of oocytes). The lag between GSI peak and the beginning of the spawning season could be associated with the increasing size of the developing oocytes.

HSI and K presented an inverse trend to GSI (Fig. 1), indicating a probable mobilization of reserves for gonad development, which is typical of determinate species.

Regarding the reproductive strategy of pouting the following lines of evidence were investigated:

- The decrease of the NDO and the relative NDO during the spawning season (Fig. 2) is considered as evidence of determinate fecundity, since this indicates no replacement of the standing stock of oocytes along the spawning season.

- The average ratio between NDO and BF was 24 (number of batches during the spawning season), a consistent number for a determinate fecundity species with such a protracted spawning season.

- There was a weak increasing trend of mean oocyte mean diameter during the different maturity stages (except spent females), also suggesting that the fecundity of the pouting could be determinate.

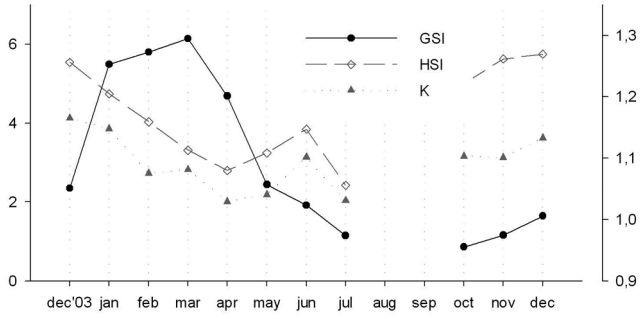

Figure 1. - Annual changes in GSI, HSI and K.

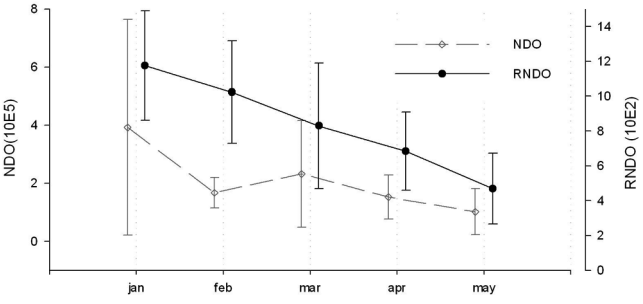

Figure 2. - NDO and RNDO along the spawning season.

Conclusions

- Pouting in the Galician shelf show asynchronous ovarian development with a relatively protracted spawning season from January to May.

- The trends of HSI and K during the year indicated a likely mobilization or energy reserves for gonad development. This pattern needs further research as it could be a good indicator of energy content and the nutritional state of the fish

- Our results indicate that pouting is a determinate fecundity species. This is an important result as the estimated NDO in pre-spawning females is equivalent to their potential fecundity (Murua and Saborido-Rey, 2003).

References

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